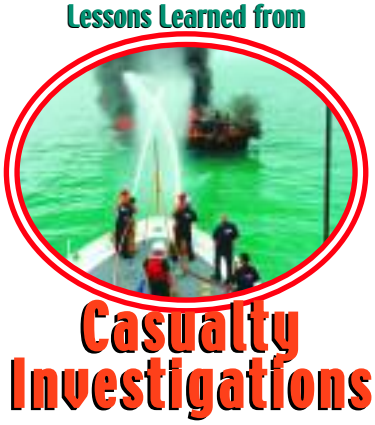
Pushing The Limits

When a resilient clammer finally expired, taking with her two lives, commercial fishing found time to reflect on the basics of safety.



by Ms. Daisy R. Khalifa
Special Correspondent to *Proceedings*

Except to a commercial fisherman, it is hard to imagine being one of just five crew returning home on a freezing January night in the North Atlantic aboard a 112-foot fishing boat, loaded with a quarry of some 400,000 pounds of clams. It is also hard to imagine that, with so much accomplished in little more than 24 hours, that events could turn tragic, quite literally, in the blink of an eye. In the case of the rugged fishing vessel *Cape Fear* and her crew, a quiet journey home after a bountiful day's work ended in less than 10 minutes, when two waves hit the vessel and she sank, taking with her the lives of two deckhands.

The loss of the vessel more than seven years ago, near Cuttyhunk Island, Mass., became something of a poster child of commercial fishing casualties for a variety of reasons. The incident was the first in recent legal history to garner more than $1 million in pain and suffering damages for the estates of the two fishermen who died at sea. It was the vivid and grim depiction of a seaman struggling for his life that transformed the lawsuit from that which would seek only economic damages to additional damages for conscious pain and suffering.

The success of the lawsuit, in turn, underscored a harsh reality for members of the commercial fishing trade: that failures in basic upkeep of safety equipment, such as operable immersion suits, suit strobe lights, and life rafts, coupled with disregard for basic safety regulations, stability guidelines, and complacency toward conditions aboard the vessel in the name of meeting fishing quotas, will cost lives. Put another way, had the crew taken the time to remedy an improperly closed clam tank hatch cover, properly maintain the immersion suits by regularly waxing the zippers, and adhere to basic guidelines within the vessel's stability book, among numerous 'active human performance failures' outlined in the U.S. Coast Guard incident report completed in late 1999 by CAPT G.S. Matthews, this incident may never have occurred.

What Happened

Cape Fear departed Sea Watch International Terminal in New Bedford, Mass. on a clamming voyage at 3:15 p.m. on January 7, 1999, following a foiled attempt to get underway on January 6. The captain of the vessel turned around the day prior because the weather was too severe, according to his testimony. The five-man crew included the mate and three deckhands. The crew sailed three hours and 45 minutes to the site where the vessel clammed, 14 miles southwest of the entrance to Buzzards Bay. The captain and crew fished for more than 23 hours between January 7 and January 8, and, because the clams were plentiful in the area

PA2 Jacquelyn Zettles, USCG

they fished, they were able to quickly catch a full load—enough quahogs to fill all 130 cages aboard the vessel.

At 6:30 p.m. on January 8, the vessel departed the fishing grounds to head back to the New Bedford Terminal. Upon departure from the fishing grounds, according to the vessel casualty report, one of the port side clam tank hatch covers was left open three to six inches.

At approximately 7:55 p.m., a high water alarm sounded in the pilothouse for the hydraulic room. The captain went to the engine room to start an electric bilge pump to take suction and pump out the hydraulic room as a precaution.

At 8:00 p.m. the vessel was on autopilot at a speed of seven and a half to eight and half knots, near the entrance to Buzzards Bay. The wind was 20 to 30 knots from the southeast and the seas were six to eight feet from the southeast, along with sporadic snow and rain. Visibility varied between two to six miles.

Says the report: "[The captain] testified that the seas seemed to be getting calmer as they approached Buzzards Bay. Then, just before 8:00 p.m. two large waves hit the stern of *Cape Fear*…[The captain] called the [F/V] *Misty Dawn* on VHF radio channel 8, and told the mate, that they had taken 'two big ones,' and that 'she rolled hard two times.'"

At approximately 8:10 p.m., and just prior to realizing the *Cape Fear* was taking on water, the captain and three deckhands were in the pilothouse together "watching television, joking around and horse playing."

Says the report:

> "[The captain] and the deckhands noticed one wave which crossed over their stern, washed up on the back (number 3) hatch covers, and did not recede. The *Cape Fear*'s stern started sinking evenly at first, not listing to port or starboard. The *Cape Fear* capsized and sank within five minutes of the crew noticing this problem."

The captain, once again, called the *Misty Dawn*, a clam vessel from the same fleet that was two miles ahead of the *Cape Fear* and headed inbound to Sea Watch Terminal. He told them they were having problems and asked the *Misty Dawn* to turn around. When the mate on the *Misty Dawn* called back, asking "what's up?," the captain of the *Cape Fear* responded saying, "A lot of water. Call the Coast Guard."

The Icy Waters

The casualty report explains a series of rapid-fire events between the crew's first noticing water not shedding off the stern to its sinking five minutes later. In that time, says the report:

> "[Deckhand one and deckhand two] woke the mate, who was asleep in the berthing area. The entire crew began donning their survival suits…By the time the mate climbed the ladder from the crew berthing to the pilothouse, the water was starting to cover the number two port and starboard clam tank hatch covers. The mate estimated the *Cape Fear* sank within three minutes of when he was woken up….The mate saw [deckhand one] grab a suit from the walkway by the galley. The mate then got his suit from the walkway …and began donning it out on the deck between the galley and the watertight door and the engine room watertight door. This was the last time [deckhand one] was seen alive."

The mate and deckhand three, who was the only crew member unable to swim, both completely donned their suits, while the captain and deckhand two, according to the mate's testimony about what he saw, only had their suits halfway up.

After advising the *Misty Dawn* to call the Coast Guard, the captain "threw down the radio microphone and said to deckhand two and deckhand three, 'We have got to get out of this wheelhouse now.'"

The capsizing of the vessel caused the captain and deckhand two to enter the water about 20 to 30 feet apart. "The captain asked [deckhand two] if he had his survival suit on, and [he] said no—that he was trying and needed help. The captain told [deckhand two] that he was also having problems."

In the meantime, deckhand three was thrown to port, as the vessel rolled to port. The mate had entered the water nearby and been struck by a board used for standing while working the vessel's dredge. Uninjured, the mate, whose survival suit strobe light worked, was able to use the 10-foot board for floatation and he reached deckhand three. While deckhand three and the mate used the board to kick in the direction of the captain, the captain "tried donning his hood and zipping his suit several different ways, unsuccessfully. Finally, he gave up and just held the neck together, trying to get the water out of his suit and holding his hood down."

A rescue in the icy waters spared three of the five men their lives, as described in the report:

> "Once the captain, mate and [deckhand three] were together, they realized that no one had heard anything from [deckhand one]…The captain and mate then heard [deckhand two] for the last time. He was faintly hollering for help and said, 'Oh, God.' The captain estimated from the sound of his voice that [deckhand two] was approximately five to ten feet from them. They tried to find him, but never heard from him again… The three of them, the captain, the mate and [deckhand three] floated hanging on the board for a while. Then, they saw the lights of the *F/V Misty Dawn*. The survivors estimated they were in the water 20 to 30 minutes before being picked up by the *Misty Dawn*… None of the survivors ever saw the life raft in the water."

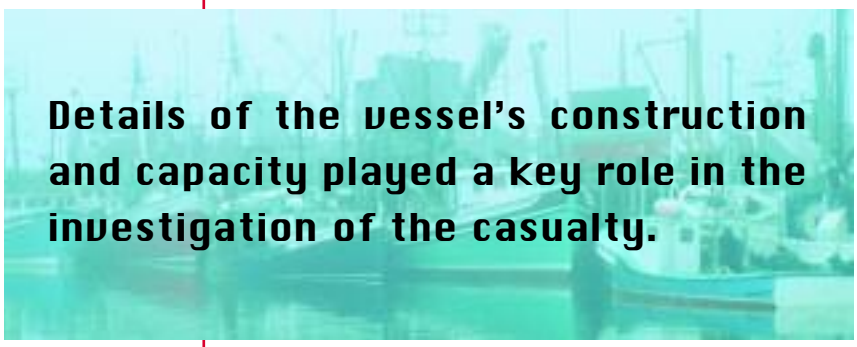
Deckhand one's body was found shortly after nine a.m. the next morning from the surf on the Gooseberry Island portion of Horseneck Beach, in Westport, Mass. He was wearing a partially donned survival suit, and the officers who found him noticed that his survival suit zipper was not zipped up. Deckhand two was never found and he was presumed dead. Early the same morning that deckhand one's body was found, a Coast Guard helicopter located an empty survival suit off of Slocum's Neck, Mass.

The Vessel

The *Cape Fear* was a 16-year-old clamming vessel used for ocean quahogs. At 112.8 feet, the vessel was a steel-hulled, Western Stern Clammer. In 1994, the *Cape Fear* was purchased by Cape Fear, Inc., a company in business since 1985 with a fleet of five clam boats. In addition to the F/V *Cape Fear*, the fleet included the *Misty Dawn*, *Jersey Devil*, *Miss Merna* and *John N*. The *Cape Fear* operated year round, and she had made 106 trips in 1998 for a total of 3,888 hours at sea. The average trip lasted 36.6 hours. A seasoned fisherman of nearly 20 years, the captain onboard during the casualty had been the vessel's only captain since the vessel had been purchased five years earlier.

In Spring of 1996, the vessel was lengthened, with the addition of a 21-foot mid body section. The new mid-body consisted of two new clam tanks for a total of six, which became the number two clam tanks port and starboard. They were covered by hatch covers with voids outboard of them, one port and one starboard. Also added were two double bottom fuel tanks, one port and one starboard

The vessel carried 120 to 130 clam cages, with 90 cages loaded into six clam tanks below deck and 40 cages on the main deck. Each of the six tanks, or holds, held 15 cages. Of the 40 cages on the main deck, 24 were at the waist—12 along the port rail, 12 along the starboard rail, and 16 on the hatch covers. A cage of clams holds about 32 bushels and *Cape Fear* carried more than 4,000 bushels home on a given trip. With one bushel weighing 90 pounds or more, a single cage of clams weighs upwards of 3,000 to 3,400 pounds. With 130 loaded cages on board, the vessel had been carrying home anywhere from 390,000 pounds— or 195 tons—of added cargo.



Cause and Analysis

Details of the vessel's construction and capacity played a key role in the investigation of the casualty, and the report chronicles in depth the construction of the vessel—from its pumping and electrical systems, to its various machinery installations, the new mid-section construction, and the tank loading configuration. While routine for an investigative report, the complex and lengthy data furnished information necessary for the maritime and legal community to extract an answer for several crucial questions, among them: Was the vessel unseaworthy due to overloading?

And while overloading, downflooding, and lack of emergency preparedness, in addition to the crew's failure to adhere to basic stability book guidelines, loomed largely as the principal causes of the casualty—causes that are ultimately attributed to human failure—the report goes to great lengths to explain the mechanical and physical state of the vessel in order to illustrate how certain procedural and equipment failures might have been dealt with differently. In essence, the report, in and of itself, is an exacting, if not fundamental, precautionary case study.

Stability Book

At the time the vessel was lengthened, a naval archi-

tect from Propulsion Data Services drafted a preliminary stability book for the owner of the vessel and its parent company, based on calculations and vessel plans. The naval architect, who testified following the casualty, had conducted a stability test for the owners of the vessel in 1992, and completed a new stability book for the vessel's owner in mid-April 1996, and again in 1999. The stability book included a section on General Operating Condition dos and don'ts to serve as basic guidelines for the captain and crew. According to the report:

> "The results indicated that the stability of the *Cape Fear* as it was outfitted and equipped on 7 April 1996 was satisfactory for operation on exposed waters as a commercial clam fishing vessel. It was determined that there were no unstable operating conditions provided trim was kept to plus or minus two feet and the freeboard at the stern was maintained at 18 inches or more. A final stability book dated 9 April 1999 was drafted by the Naval Architect and mailed to [the owner] of the *Cape Fear*."

Upon realizing the stern was sinking, the captain slowed the vessel by putting it to idle, which, in normal circumstances, would cause the stern to rise. Given the stern was already under water... this may have been the wrong action.

The stability book, according to the investigative report, was computed based on the assumption that the vessel would carry 120 cages—a number the naval architect arrived at based on the capacity of the three clam holds of 30 clam cages each, and 30 cages on deck. The naval architect testified that the *Cape Fear* was "easily loaded to its capabilities with the 30 cages on deck and 90 down below." While the stability book did not clearly limit the number of cages that could be carried on board, he testified following the casualty that more cages should not have been carried with the condition of the seas the vessels had experienced.

Furthermore, says the report:

> "The *Cape Fear* carried 10 cages more than the Naval Architect had conducted stability calculations for in the 1996 stability book. The owner never contacted or consulted [the naval architect] concerning the carriage of 10 more cages. [The naval architect] testified that 10 extra cages on the *Cape Fear*, for the total of 130 cages, would affect two things. It would affect the vertical center of gravity so the range of stability is reduced. And, it makes the boat heavier, which makes it more susceptible to water coming on deck and other problems."

The matter of increasing the amount of cages aboard the vessel from 120 to 130, her load when she sank, was the first listed cause of the casualty under the category of 'active human performance failures.' Says the report:

> "The failure to load the vessel in accordance to the guidance in the stability book resulted in the vessel being overloaded and improperly loaded, and created a hazardous stability condition."

Testimony as to how the cage quantity came to be increased is described in the report and in the captain's testimony. Though a veteran fisherman, the vessel's captain had never held any merchant mariner's documents nor did he have a Coast Guard license of any kind, also the case for the mate and all deckhands aboard the vessel when she sank. Current regulations do not require operators of fishing vessels under 200 gross tons to be licensed or have any formal training, and gross tonnage for the *Cape Fear* was just under 200.

The report describes the captain's testimony as follows:

> "[The captain] was not at all familiar with the stability book, and he had only glanced at the front of it when it was first placed on aboard the vessel. He was not aware of the recommendations listed in the stability dos and don'ts…With the owner's knowledge and consent, [the captain] decided approximately a year before the casualty to carry 130 cages. After the vessel was lengthened, he gradually increased the number of cages from 115 to 130…[He] loaded the clam cages and the fuel and ballast tanks on the *Cape Fear* by experience, and did not reference the stability book. He testified that after years of working on the water and

knowing how the boat handled in rough weather, he knew how to do it by 'common sense'."

Given that the captain had successfully made more than 100 fishing outings carrying 130 cages the year before, several other key causes defined as 'active failures,' together, created a risk-laden situation. Among them, says the report,

> "The failure to maintain an 18-inch freeboard at the stern in accordance with the guidance provided in the stability book created a hazardous situation. The six to eight-foot following seas made this condition particularly hazardous, because the seas were able to wash over the stern...and the failure to properly secure the number 3 port clam tank hatch cover allowed water washing on the deck to enter into the number 3 port clam tank."

Technical Studies

The latter oversight concerning the unsecured hatch cover was a salient issue in terms of the welfare of the ship, and later on, when the courts were considering how to rule on causes of unseaworthiness. At the request of the investigating officer of the casualty, LT Patrick McGuire of the Coast Guard's Marine Safety Center conducted a casualty stability analysis. An elaborate series of tests using a computer model, General Hydrostatics Version 6.7, were used to complete the calculations.

In short, the test arrived at the fact that, because the clam hold hatches were not weather tight, this situation lowered the downflooding point from the stack 6.5 feet above the deck to the aft clam hold hatch covers. With the lower downflooding point, the vessel fails all stability criteria. Continues the report:

> "In the testified loading condition, downflooding through the open hatch would be accelerated by the combination of excessive water ballast, added weight from ten extra clam cages, an open hatch and six to seven foot following seas would have likely led to flooding of at least the after holds. In this condition the loss of the vessel is likely."

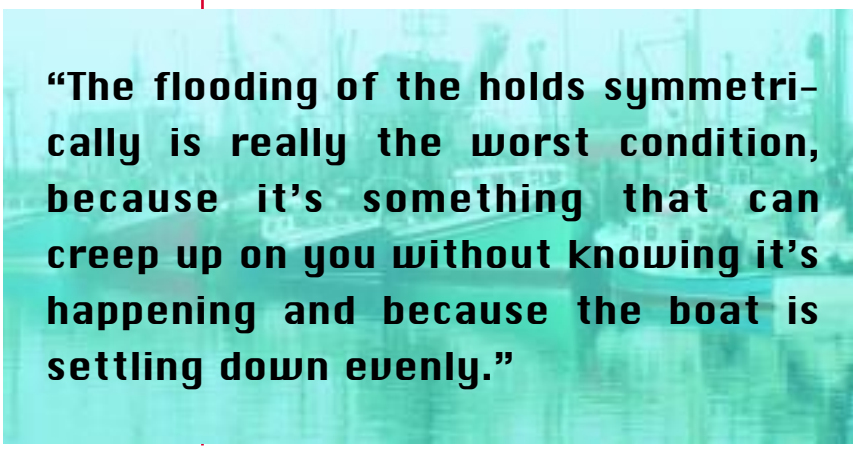
According to the report, in the early evening of January 8th as the last of the cages had been loaded into the clam holds, deckhand three, with the help of the mate, was closing the number three port hatch cover. The line that was pulled using a block and tackle to shut the hatch had a knot—instead of a splice—that prevented the hatch from closing completely, and the hatch was left open three to six inches.

At 7:30 p.m., the captain asked deckhand two about the hatch covers, and he told the captain that the number three port hatch was not closed completely, and that the number three starboard hatch was closed. This was the first time the open hatch had been reported to the captain. The captain testified he intended to have the deckhand close the number three port hatch using a "come along," but, says the report, "this was not attempted, and the hatch was never fully closed."

In the report, the naval architect provides a vivid description of the hazards of a partially open clam tank in his testimony:

> "If you fill the two aft holds, if they flood, then stability is greatly impaired. With a following sea breaking over the stern and a clam tank hatch open six inches… if you don't continuously pump, then it's only a matter of time before the hold will fill and the free surface and the weight becomes too much … the freeboard starts to deteriorate very rapidly…[He] further testified that if you were to flood one of those holds, that the list would be severe, and … eventually [you] would get flooding into one of the other holds, and unless you were able to pump it quickly, you could lose the boat."

In the case of the *Cape Fear*, the vessel flooded very rapidly unbeknownst to its crew. And, while the report cites a failure on the captain's part to take immediate and proper evasive action when the vessel was in imminent danger, the investigator states that he himself was unable to determine any particu-



lar strategy for emergent evasive actions. Upon realizing the stern was sinking, the captain slowed the vessel by putting it to idle, which, in normal circumstances, would cause the stern to rise. Given the stern was already under water, the report speculates this may have been the wrong action, though it also states that turning it into the seas, which also stems water from flowing over the stern, could have caused the vessel to capsize.

As per the naval architect's opinion and as indicated in the stability book, a flooded number three tank hold would create a particularly severe problem. In this situation, "he said the boat should be turned into the seas so it is no longer taking water on the deck, and then attempts should be made to correct the flooding problem."

But, echoing the opinion of the investigative report, the architect's additional remarks are a chilling indication of how difficult any kind of evasive action might have been:

> "The flooding of the holds symmetrically is really the worst condition, because it's something that can creep up on you without knowing it's happening and because the boat is settling down evenly… You really need to watch your tankage back there and pump it as often as possible in the following sea to make sure this doesn't happen…you could be lulled into a false sense of security on a vessel of this type because the water going through the clams has a damping effect and it will actually make the boat feel more comfortable than if the water was not there."

Tragically Unprepared

As with the nature of all accidents, the speed with which they occur is often the most confounding factor. To that end, the causes that cite complacency, inattentiveness and, in particular, lack of emergency preparedness, seem all the more perplexing by virtue of illustrating situations that might never have happened but for a few routine measures.

The demise of the two deckhands is attributed in part to the 'active equipment failures' as listed in the report, and the careless maintenance of the safety gear, including the immersion suits. The only suit with a working strobe light was worn by the mate, who had the captain and deckhand three at his side when the *Misty Dawn* rescued them. The crew of the *Misty Dawn* testified, according to the report, that they were able to rescue the three crewmen because they spotted a strobe light.

The immersion suit lights, zippers, and retro reflective tape were not maintained on a set schedule. Furthermore, says the report, the captain and crew did not conduct safety drills in accordance with commercial fishing regulations (46 CFR 28.270) The regulations "specify that drills must include donning immersion suits. Had drills been conducted as specified in the regulations, potential problems with the survival suit zippers, lights and retro reflective tape may have been discovered and corrected prior to casualty."

Other causes of the casualty included, as well, those indirectly accountable—parties associated with the vessel, but listed under causes that were 'specific latent conditions.' The report cites: the owner, whose liability ultimately landed him in court as a result of the casualty; the underwriters who failed to conduct proper drills with the crews; regulators within the commercial fishing industry for not better monitoring the vessel systems and its construction history; and, to the Coast Guard's post-casualty drug testing regulations.

Recommendations

Of the recommendations and subsequent endorsements from the investigation into this casualty, a top priority called for the Coast Guard to establish a regulatory licensing project for masters and mates of certain types of commercial fishing vessels. Specifically that "a project requires licensing of masters and mates for certain types/class/size of commercial fishing vessels that operate beyond the boundary line including oceangoing clam vessels. This would ensure that they would have a good understanding of stability regarding their vessels. It would also ensure that the vessel, its equipment and lifesaving gear are maintained and operated properly in accordance with applicable regulations."

The same recommendation was made requiring merchant mariner documents on the part of master and mates, to which the Coast Guard endorsements unanimously agreed. The First District Commander's endorsement said the subject was discussed at the March 1999 meeting of the Fishing Vessel Casualty Task Force, stating the matter was "adopted for proposal for future rulemaking."

Overall, the recommendations suggest a fair amount of proactive involvement on the part of the Coast Guard in the affairs of oceangoing clam vessels. Included were recommendations for annual inspections, certifications, requisite stability instructions and developing industry standards regarding the

material condition of the vessel, watertight integrity, seaworthiness, construction and frequency of dry-dock examinations.

However, while the broadening of the Coast Guard's role in commercial fishing was recommended, certain portions of those recommendations were not fully endorsed, given budget limitations and congressional sign off. But in terms of safety drills and improved life saving regulations as well as launching a major public outreach campaign aimed at the commercial fishing community based on this casualty, these recommendations were wholly supported.

As for civil penalties, the owner was cited for operating the vessel in a negligent manner, "[endangering] the life, limb and property of a person." The report states that the vessel's owner failed to ensure the guidance provided in the vessel's stability book was followed; failed to notify the naval architect of changes made to the *Cape Fear*; failed to ensure drills were conducted; and, failed to ensure lifesaving equipment was maintained and operable.

Moreover, the owner was held accountable in the report for violation of the Federal Water Pollution Control Act by discharging a harmful quantity of oil into the navigable waters of the U.S. Following the sinking, approximately 17,900 gallons of diesel fuel and 2,050 gallons of lube oil were discharged into Rhode Island sound and Buzzards Bay.

Legal Repercussions

The owner faced two lawsuits after the *Cape Fear* sank. In November 2002, a U.S. District Court in Massachusetts rejected his petition for exoneration or limitation of liability, and found that the vessel was unseaworthy based on overloading, leaving the fishing vessel's owner fully exposed to pending damage claims. Subsequently, the deaths resulting from the casualty raised the bar for conscious pain and suffering damages in maritime lawsuits, when the estates of the two deceased crewmembers sued the owner in federal court.

Because liability had been established in the previous lawsuit, the case on behalf of two crewmembers' families focused on damages. The plaintiffs prevailed after a moving account by one of the survivors who emotionally recounted deckhand two's final minutes alive in the water. The jury awarded the family of one crewmember $640,000 and $208,000 for the estate, awards that, with interest, exceeded $1.2 million.

The *Cape Fear* had sunk twice before the most recent casualty that took two fishermen's lives, but on both occasions she had been raised and put back into productive and profitable service. After the third sinking, the vessel was damaged beyond economical repair. On March 8, 2000, the *Cape Fear* was dropped 75 feet below the ocean's surface after being donated as part of the Moriches Artificial Reef off the coast of Long Island.

About the author: *Ms. Daisy Khalifa is a freelance writer and has worked in the communications field for 17 years. She has written feature and business articles for a variety of publications covering law, technology, telecommunications, real estate, architecture and history. A native of California, Ms. Khalifa lives in Arlington, Va.*

Endnotes

[1] *Massachusetts Lawyers Weekly*, by Tony Wright, April 5, 2004.
[2] United States Coast Guard, Investigation Into the Circumstances Surrounding the Loss of the Commercial Fishing Vessel Cape Fear, *Three NM SW of Cuttyhunk, Massachusetts on January 9, 1999 With The Loss of Two Lives*, by CAPT G.R. Matthews, Investigating Officer, page 78.
[3] USCG Investigative Report, page 12.
[4] USCG Investigative Report, page 13.
[5] USCG Investigative Report, page 17.
[6] USCG Investigative Report, page 16.
[7] USCG Investigative Report, page 16.
[8] USCG Investigative Report, page 18.
[9] USCG Investigative Report, page 18.
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[12] USCG Investigative Report, page 19.
[13] USCG Investigative Report, page 20.
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[17] USCG Investigative Report, page 51.
[18] USCG Investigative Report, page 78.
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[29] USCG Investigative Report, page 84.
[30] USCG Investigative Report, page 96.
[31] Endorsement, W.D. Rabe, page 2.
[32] USCG Investigative Report, page 99.
[33] USCG Investigative Report, page 78.
[34] *Massachusetts Lawyers Weekly*, by Tony Wright, April 5, 2004.